Ω400 Computer Graphics

METEUS

Performance by Design.

Ω400. A cost/performance breakthrough in computer graphics.

Now, high speed and 1024 resolution for the price of 512.

Metheus Ω400™ Computer Graphics represents a true breakthrough in cost vs. performance. For the first time, you get the resolving power of a 1024 × 1024 pixel image at a price historically associated with 512 × 512. And, exceptional drawing speed as well—a full one million pixels per second.

Using the latest LSI/VLSI technologies and new approaches in design and packaging, Metheus has sharply lowered the cost of high resolution, high performance color graphics.

For high resolution applications, the Ω400 means dramatically reduced costs. For other applications, it means sharply improved performance and clarity. For OEMs and end users in many fields, the Ω400 Display Controller delivers **Performance by Design.**

1024-pixel resolution communicates more information, more effectively.

One of today's most promising solutions to man-machine interaction is computer graphics, because man thinks, reasons and computes in images. Quantitatively, man can assimilate in image form the information equivalent of *millions of characters per second.* Yet, he can absorb only about one hundred characters per second of written text.

In the world of computing, a picture literally is worth several thousand words. And, this is the real importance of high resolution graphics. As resolution increases from 512 × 512 to 1024 × 1024, the image not only becomes clearer and easier to interpret, it actually contains four times as much information. The communication potential of graphics is utilized more effectively with high resolution.

High drawing speed means high productivity.

Fast graphics systems respond quickly as images are revised or as new ones are created. Slow systems create delays that can be irritating to the user, resulting in poor ergonomics and low productivity. In high resolution graphics, speed is especially important since a 1024 × 1024 display must draw four times as many pixels as a 512 × 512 display to provide the same response speed.

The Ω400 draws vectors and characters at a full *one million pixels per second.* What's more, it performs several common operations at *16 million pixels per second!*

Metheus delivers performance that lets you fully exploit 1024 resolution, opening the door to many new interactive applications.

Reliability to match performance.

Reliability is a key consideration for computer equipment. Frequent down-time losses and repair expenditures can quickly drive the true cost of ownership past the point of acceptability.

With this in mind from the beginning, the Ω400 was engineered with reliability and maintainability as a foremost design consideration. Through features like single-board construction, built-in signature analysis and fault isolation, the Ω400 stays operational longer and repairs faster.

Broad applications potential.

The Metheus Ω400 brings low cost, high resolution, high speed graphics to a wide range of applications. These include:

Computer Aided Design (CAD). For such diverse design disciplines as mechanical, integrated circuits, structural modeling, and architecture.

Cartography. In fields such as urban planning, economic research and civil engineering.

Scientific/Engineering Research. Any situation where mathematically described systems or models must be interpreted.

Process Control and Monitoring. Metheus Ω400 makes 1024 resolution cost effective for power generation, and other industrial control applications.

Imaging. For quick display of pseudo images from solids modeling or animation systems, or real images from satellite, x-ray or other data sources.

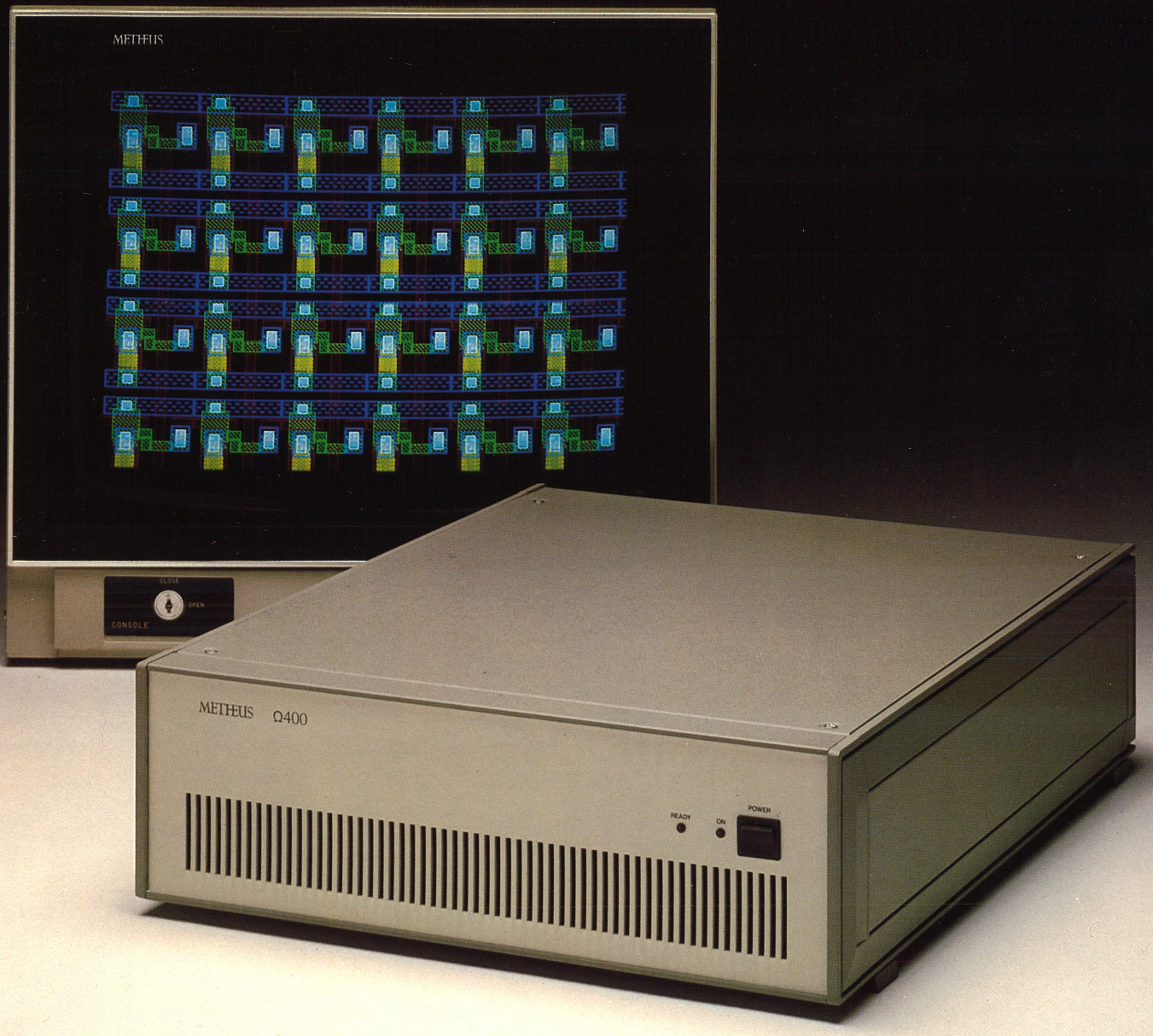
Graphic Arts and High-End Business. Allows rapid transformation of visual concepts.

Controller or Subsystem, plus options to match your application.

The Ω400/DC Display Controller is a complete graphics processor, designed for the high volume OEM customer. The Ω400/DC is ready to interface with a host computer and color video monitor via the RS-343 video standard.

The Ω400/GS Graphics Subsystem is designed for the end user or lower volume OEM. The Ω400/GS combines the Display Controller with a high resolution 19-inch color video monitor which uses a precision in-line electron gun to deliver the sharpest possible image. A series of options lets you choose the monitor that best meets your needs. You may choose a content-rich 1024 × 768 display refreshed at 33Hz, or a 736 × 552 display refreshed at 60Hz non-interlaced for maximum brightness and a flicker-free image. Dynamic convergence options provide the greatest image precision and clarity available.

Finally, both the controller and subsystem are available with either four or eight bit planes. The very economical model Ω420 provides 16 colors. Model Ω440 permits simultaneous display of up to 256 colors, selectable from a palette of over 16 million colors. Up to 256 gray levels are provided for monochrome applications, with the ability to use the color map for gamma correction.


METHEUS
CLOSE
OPEN
CONSOLE
METHEUS Ω400
READY
ON
POWER

Design innovations escalate system throughput.

Exclusive design features put Metheus out front.

The key to Ω400's superior performance is the use of dedicated, high speed hardware to accomplish many graphic display functions. The Ω400 gives you optimized throughput from host I/O to the final CRT display.

For example, a special FLASH-fill™ instruction draws rectangular regions of the screen at an unprecedented 16 million pixels per second.

Pixel block transfers in hardware for performance.

A valuable feature in computer graphics is the ability to move complete pieces of the display from one location on the screen to another, and to change their orientation if desired.

Because this tool is so important and so frequently used, Metheus has implemented it in firmware. It's called PIXBLT™ and it is part of the Ω400's standard instruction set. PIXBLT frees your host computer from this time-consuming operation, and gives you greater speed and flexibility when executing pixel block transfers.

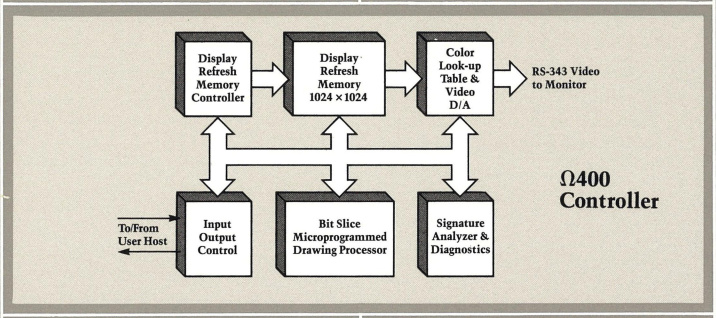
High speed hardware accelerates graphics processing.

At the heart of Ω400 is a bipolar bit-slice processor responsible for all display drawing and system control. It draws into a display memory constructed from 64K RAM chips arranged in a 1024 × 1024-bit configuration, four or eight planes deep.

The memory is addressed via the Display Memory Controller, which allows operations such as panning and zooming. The memory bits associated with each pixel are applied to a 256 × 24 color look-up table implemented in high-speed ECL random access memory. This permits the simultaneous display of 16 or 256 colors from a palette of over 16 million.

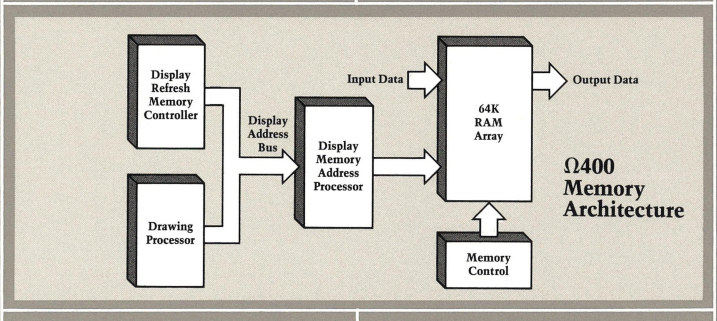
The Ω400 host computer interface is designed for flexibility. All basic functions reside on the main circuit board, while a smaller satellite board contains the interface unique to the host computer. Parallel interfaces are currently available for DEC's VAX-11, PDP-11 and LSI-11 families.*

In addition, there is an RS-232C serial interface allowing speeds up to 9.6 KB. Soon to be available are more parallel interfaces and a very high-speed serial data communications capability.


Display Refresh Memory Controller
Display Refresh Memory 1024 × 1024
Color Look-up Table & Video D/A
RS-343 Video to Monitor
To/From User Host
Input Output Control
Bit Slice Microprogrammed Drawing Processor
Signature Analyzer & Diagnostics
Ω400 Controller

Custom bipolar bit-slice processor optimizes drawing power.

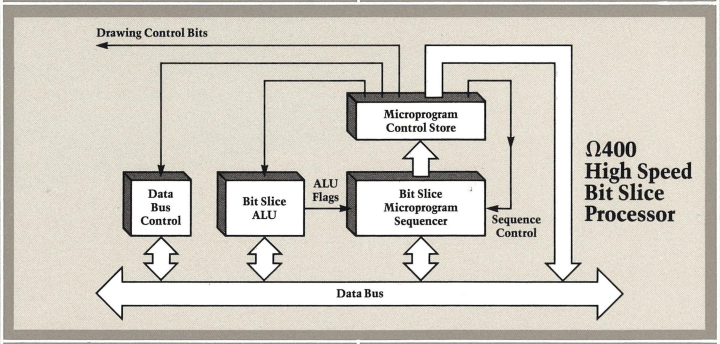
Ω400's bit-slice processor has a proprietary architecture dedicated exclusively to the system's graphics instruction set. Consequently, an entire drawing operation (one pixel of a vector) can be accomplished in a single processor cycle. Using a general-purpose MOS processor, the same operation would typically consume at least four or five cycles.



64-bit microcode supercharges throughput.

The processor architecture and microcode were developed simultaneously, each augmenting the advantages inherent in the other. To extract maximum efficiency from the architecture, a microcode word length of 64 bits was specified.

Wide-word microcode provides the ability to perform several concurrent operations within the processor's internal logic and register set. Using 64-bit words it is possible to include five instruction fields within a word, and execute concurrently as many as five internal processing operations. The result is a marked improvement in processor throughput, often twice that of processors with shorter word lengths.



Exclusive memory architecture overcomes traditional bandwidth limitations.

Lower density compo-

nents, such as 16K RAMs, allow high bandwidth because many chips are read from or written to simultaneously. These lower density chips, however, increase hardware space and boost power requirements, while downgrading overall reliability.

High density memories, such as 64K RAMs, offer advantages of reduced component count, reduced board space, less power consumption and greater system reliability. The drawback has been that high density memories require more read/write cycles to manipulate the same number of bits, while available read/write time in *all* graphics display memories is at a premium. In the past, high density memories degraded system performance.

Metheus has overcome this problem with an exclusive memory architecture that permits the use of 64K RAMs without a drawing speed penalty. This proprietary design allows an effective cycle time of 220 ns, and contributes substantially to the Ω400's drawing speed of one million pixels per second. A patent for this memory architecture is pending.

Additional features extend Ω400's flexibility.

For applications requiring a detail-rich image and moderate display brightness, a 33Hz interlaced refresh can be matched with 1024 × 768 resolution using long-persistence phosphors. Where a bright, rock solid image is essential, Ω400 can operate at a 60Hz non-interlaced refresh rate while still achieving a 736 × 552 pixel image.

For unique character font requirements, the Ω400's standard character font can be replaced or expanded with an optional EPROM.

*VAX and PDP are registered trademarks of Digital Equipment Corp.

Integral reliability and maintainability reduce the "cost of ownership."

The true cost of ownership for any electronic product involves more than just the purchase price. It also includes "life cycle" costs associated with reliability (failure rate and related losses) and maintainability (time and cost of repairs). Ω400 has built-in design features targeted directly at reducing these long-term costs.

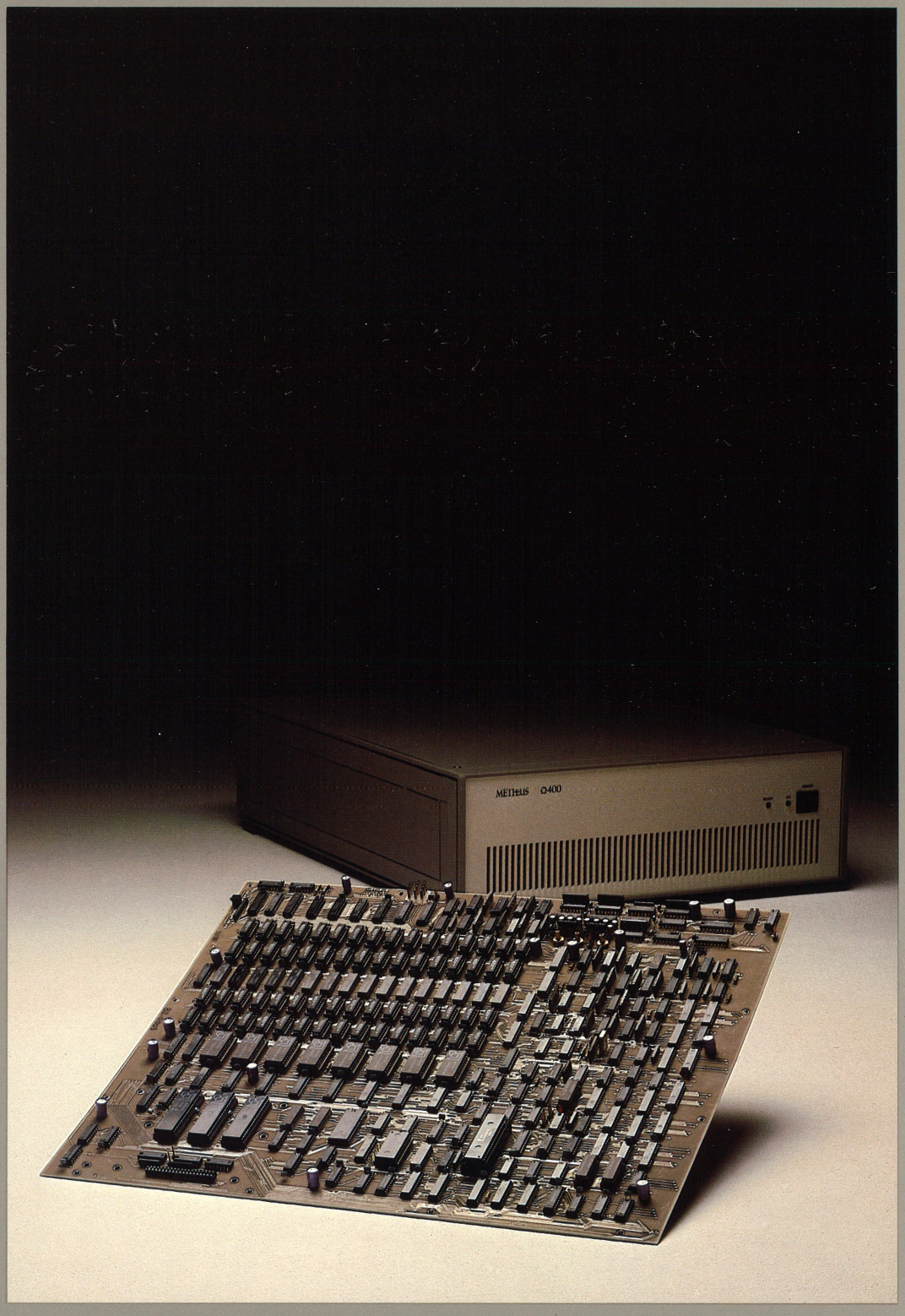
Single-board construction eliminates the most common points of failure.

A simple, but important feature is the use of a single printed circuit board to hold all the system's hardware. A very common cause of malfunction in electronic systems is the failure of mechanical connections that tie multiple circuit boards together. By dramatically reducing the number of these connections, Metheus takes a big step forward in reliability.

Self-test microcode, on-board signature analyzer and fault isolation.

To provide quick verification of correct system operation, the Ω400 includes self-test microcode. This code, activated at power-up, rapidly checks the system for potential faults. Any problems are flagged immediately.

Maintenance time is cut to a minimum with an on-board signature analyzer that checks out logic and helps localize faults. LED indicators isolate these fault locations on the board.



AXIA . A graphics package fine-tuned to the Ω400's advanced architecture.

A rapid path to complete applications software.

The AXIA™ Graphics Package gives you an optimized approach to applications software development. AXIA provides a full set of graphics primitives that take full advantage of the Ω400 instruction set, including the special hardware-implemented features such as seed fill and polygon fill.

AXIA is written in FORTRAN for transportability, and all its graphics primitives are FORTRAN-callable subroutines. You can use the primitives as pre-fabricated building blocks to construct sophisticated application programs.

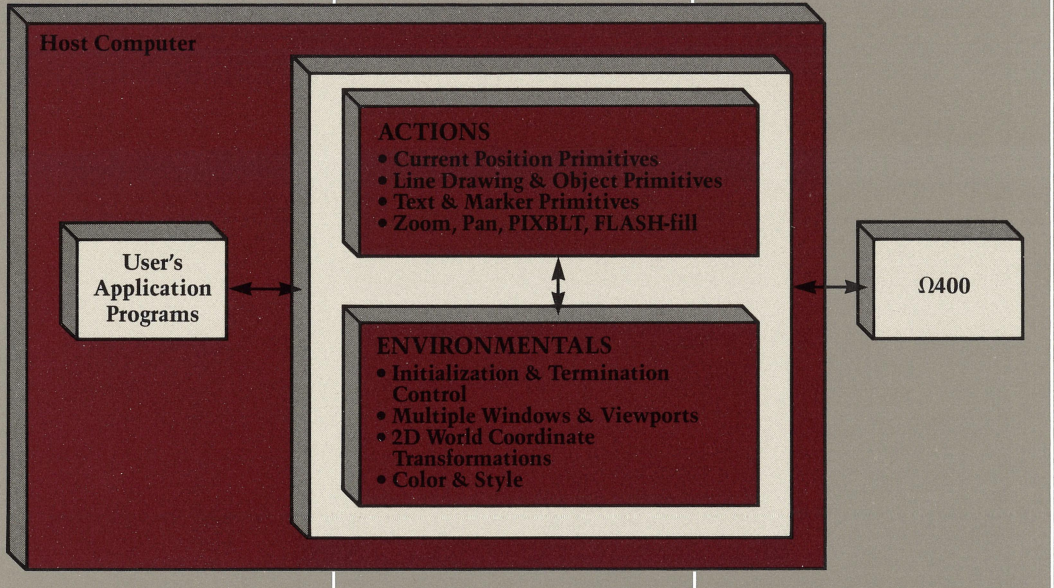
To further broaden your application base, AXIA is modeled after the 2D ACM SIGGRAPH CORE standard. Many existing programs can be easily converted to run under AXIA.

A comprehensive set of program features.

The AXIA Graphics Package contains more than 90 primitives that are organized into action-oriented and environment-oriented subroutines, all callable by the user's application program.

Action primitives give you a complete set of tools to create images on the display, including both absolute and relative moves, and a full range of line and object drawing primitives. Also available are special actions such as panning and zooming. AXIA takes advantage of Ω400's special instructions such as FLASH-fill and PIXBLT, which implements block pixel moves directly through hardware.

Environment primitives let the user manage a set of virtual windows mapped from the user-coordinate space to the Ω400's physical coordinates. For each window, AXIA provides the necessary transformations for the user's data, including 2D scaling, rotation and clipping. Environments also control a wide range of static attributes such as color, line style and fill patterns.



Whether you are already involved in computer graphics or are just now contemplating the move, you should evaluate the Ω400. In terms of technology, resolution, speed, reliability, maintainability and price, we believe you will agree that the Ω400 is the clear leader in computer graphics.

For more information on the Ω400 and how it can improve the cost, performance and ergonomics of your application, contact Metheus Corporation, or your nearest Metheus representative.

METHEUS

The name **Metheus** is taken from the Greek Titans Prometheus and Epimetheus who were charged with providing tools for the earth's inhabitants. Prometheus is traditionally associated with creativity and bold originality. The literal translation of **Metheus** is "Thinker."

METHEUS

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AXIA
Graphics Package

Supports and enhances the Ω400 graphics products

Written in ANSI FORTRAN for portability

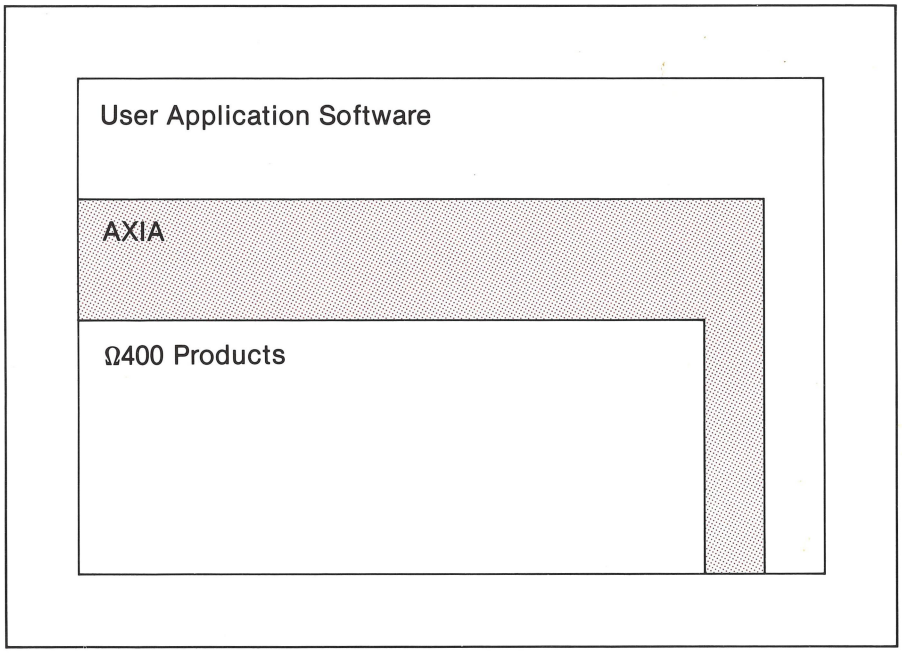
Modeled after the 2D ACM SIGGRAPH CORE standard

Manages multiple Views for hierarchically structured drawings

92 FORTRAN-callable subroutines

Minimizes application development cycle

METHEUS



Hierarchical
System Structure

The AXIA™ Graphics Package supports the rapid development of application software by users of the Ω400™. Written in ANSI FORTRAN for portability, the AXIA Graphics Package is an augmented subset of the ACM SIGGRAPH CORE standard and extends the functions of the Ω400 hardware. With AXIA, the user can manipulate a set of windows and viewports (Views). This allows efficient construction and manipulation of hierarchically structured drawings. High performance hardware functions of the Ω400, such as FLASH-fill,™ PIXBLT,™ pan and zoom are also accessible as simple subroutine calls. By using AXIA, application development is greatly accelerated and documentation and support are eased. Because of its power and general utility, AXIA is ideal for a wide range of applications including computer-aided design, graphic arts, solids modeling, research, imaging and high performance process monitoring.

Application Program Development

The AXIA Graphics Package facilitates the development and support of application software by providing a stable development base needed for sophisticated graphics programs. The Graphics Package consists of a set of 92 FORTRAN-callable subroutines and functions which execute in the host computer under the control of the user's application programs. The AXIA Graphics Package is modeled after the ACM SIGGRAPH CORE standard with special extensions for raster graphics and viewing.

Organization of the AXIA Graphics Package

As shown in Figure 1, the Graphics Package consists of Environmentals, Actions and Utilities. All graphics primitives are FORTRAN-callable subroutines and functions.

The Environmentals permit the user to initialize and terminate the AXIA Graphics Package. They also permit the administration of a set of viewing environments, or Views, where each View supports a mapping of world coordinates into normalized device coordinates. These, in turn, are mapped into the physical coordinates required by the Ω400. For each View, AXIA manages a window, viewport and 2D viewing transformations. These are applicable to graphics actions such as move, draw, polyline, polygon and arc.

Other Environmentals include primitive attributes such as the color and style of lines, text, markers and interior object-fill.

The Actions initiate various internal processes and utilize environmental information. Actions include line drawing requests (draw, arc, polyline), object drawing requests (rectangle, polygon), marker requests and text output.

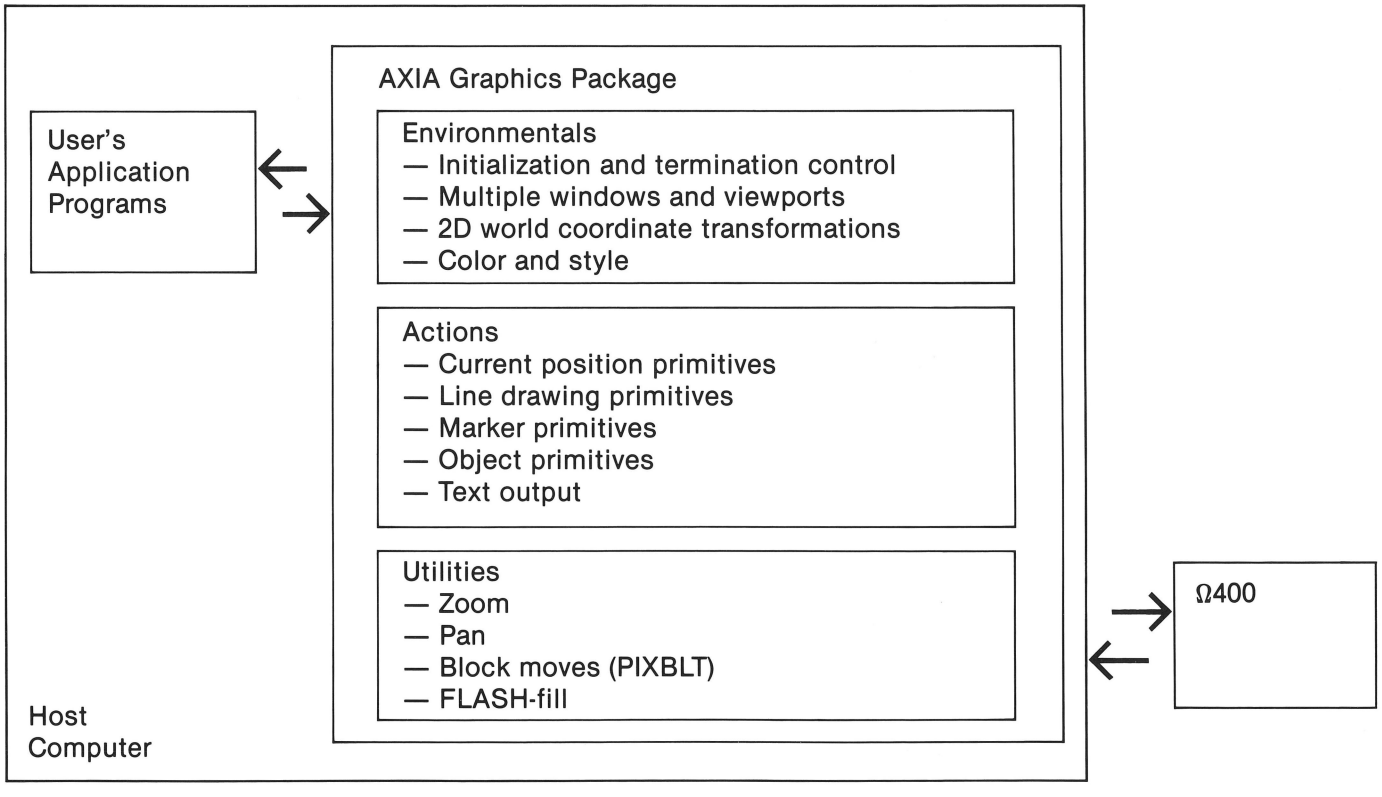
The Utilities provide the direct translation of the more powerful hardware functions such as FLASH-fill, PIXBLT, pan and zoom.

Operating Environment

Initially the AXIA Graphics Package supports the DR11* and DRV11* parallel I/O devices of Digital Equipment Corporation's family of VAX*-11, PDP*-11 and LSI-11 computers. The operating systems supported are RT-11*, RSX*-11, VMS* and UNIX**.

Future AXIA enhancements will include support for graphics input (keyboards, tablet, etc.), high-speed serial communications and parallel interfaces for Hewlett-Packard and Data General computers. Long term enhancements will include interfacing with other major processors.

Figure 1
Graphics Development Environment



Ω400 Products

The Ω400 products are high resolution, high performance color graphics products for computer-aided design, graphic arts, solids modeling, research, imaging and high performance process monitoring. For detailed information, refer to an Ω400 data sheet.

AXIA Graphics Capabilities

Environmental

Control

Environmentals are provided for initialization and termination of AXIA, error retrieval and View selection.

INIT(level, device) — Initialize AXIA.

FINIS — Terminate AXIA; release all allocated resources.

DEVICE(device) — Initialize the given output device.

DEVEND — Terminate the current output device.

INQDEV(array) — Inquire on device capabilities.

COLMAP(index,color1,color2,color3) — Set up the color map.

INQMAP(index,color1,color2,color3) — Retrieve the color map values; the colors correspond to red, green and blue.

BAKCOL(color-index) — Set the background color index.

INQBAK(color-index) — Retrieve the background color index.

NUPAGE — New page action, clears with the background color.

INITVU — Initialize a new viewing environment (View).

SAVEVU(identification) — Save the current View with the given ID number.

DELTVU(identification) — Delete the specified View.

RETRVU(identification) — Retrieve the specified View and make it current.

INQVU(identification,flag) — Inquire upon the existence of a View ID.

INQERR(error) — Retrieve the latest error value.

ERROR(flag) — Turn on/off error messages.

Primitive Attributes

Primitive attributes define characteristics of the AXIA Actions. All current attribute values may be interrogated and changed any time after the AXIA system has been initialized. Attribute values are specified modally.

TXTSIZ(width,height) — Set the text size.

TXTORN(rotationx,rotationy,mirror) — Set the text orientation; there are eight possible orientations.

MARKER(symbol) — Set the marker symbol style.

LNESTY(style) — Set the vector (line) drawing style.

FLLSTY(style) — Set the style for interior fill of objects.

EDGTYP(type) — Set the edge type for objects; edges may have line or fill attributes.

LNECOL(color-index) — Set the line color index.

FLLCOL(color-index) — Set the fill color for object primitives (polygons, rectangles).

TXTCOL(color-index) — Set the text color index.

DSMODE(mode) — Set the display mode of object primitives — fast or fill modes; fast is used for wire frame objects.

WRMASK(plane) — Set memory planes to be write enabled/disabled.

SETALL(array) — Set all of the primitive attributes.

INQTSZ(width,height) — Inquire upon the text size.

INQORN(rotationx,rotationy,mirror) — Inquire upon the text orientation.

INQMRK(symbol) — Inquire upon the marker symbol style.

INQLNE(color-index,style) — Inquire upon the line color index and the line style.

INQFLL(color-index,style) — Inquire upon the interior fill color index and style.

INQEDG(type) — Inquire upon the object edge type.

INQTXT(color-index) — Inquire upon the text color-index.

INQDSM(mode) — Inquire upon the display mode of object primitives.

INQWMK(plane) — Inquire upon the memory planes to be write enabled/disabled.

INQALL(array) — Inquire upon all primitive attributes.

Viewing and Transforms

The viewing operations are specified by windows in world coordinates and viewports in normalized device coordinates. The window is used to clip all graphical objects and determine the window to viewport mapping. Viewing Environmentals include setting up the window and viewport. Subsequent to the viewing operation, the transform Environmentals are used to scale, rotate and translate the resulting image.

PAINTW — Paint the current View's window with the background color.

WINDOW(xmin,xmax,ymin,ymax) — Select the current View's window, in world coordinates.

VUPORT(xmin,xmax,ymin,ymax) — Select the current View's viewport, in normalized device coordinates.

INQWND(xmin,xmax,ymin,ymax) — Retrieve the current window.

INQVUP(xmin,xmax,ymin,ymax) — Retrieve the viewport extents.

SETNDC(width,height) — Select a new normalized device coordinate space.

INQNDC(width,height) — Retrieve the normalized device coordinate extents.

NDC2WR(ndcx,ndcy,worldx,worldy) — Map normalized device coordinates to world coordinates.

WR2NDC(worldx,worldy,ndcx,ndcy) — Map world coordinates to normalized device coordinates.

CLIPON(flag) — Turn on/off clipping.

INQCLP(flag) — Retrieve the clipping flag value.

SETXFM(array) — Set the current View's transform.

SETROT(degrees) — Include a relative rotation into the current View's transform.

SETSCL(xfactor,yfactor) — Include a relative scale factor into the current transform.

SETTRN(x,y) — Include a relative translation factor into the current View's transform.

SETMIR(aboutx,abouty) — Include a mirror capability, affecting the transform.

INQXFM(array) — Retrieve the current View's transform.

INQROT(degrees) — Retrieve the accumulated rotation.

INQSCL(xfactor,yfactor) — Retrieve the accumulated scale factor.

INQTRN(x,y) — Retrieve the accumulated translation factor.

INQMIR(aboutx,abouty) — Retrieve the current mirror capability.

Actions

Output Primitives

Graphical objects are described in world coordinates by invocations of 2D output primitive functions. These functions include current position placement, line drawing primitives, marker primitives and object primitives. The appearance of such Actions are affected by the values of the Environmental attributes.

MOVEAB(x,y) — Move current position (CP) to (x,y) world coordinates.

MOVERL(dx,dy) — Move CP relative (dx,dy).

INQCP(x,y) — Retrieve the current position in world coordinates.

DRAWAB(x,y) — Draw a vector to (x,y) world coordinates.

DRAWRL(dx,dy) — Draw a vector relative from the CP.

DRWARC(xc,yc,xd,yd) — Draw a 3 point arc; the starting coordinate is determined by the current position.

PLINAB(xarray,yarray,n) — Draw a polyline: a series of connected vectors.

PLINRL(dxarray,dyarray,n) — Draw a polyline relative to the CP.

MARKAB(x,y) — Draw a marker at the (x,y) world coordinates.

MARKRL(dx,dy) — Draw a marker relative to the CP.

PMRKAB(xarray,yarray,n) — Draw a polyline with markers as line segment connectors.

PMRKRL(dxarray,dyarray,n) — Draw a polyline with markers as line segment connectors relative to the CP.

POLYAB(xarray,yarray,n) — Draw a polygon, affected by object Environmentals (edge and fill attributes).

POLYRL(dxarray,dyarray,n) — Draw a polygon, relative to the CP.

RECTAB(llx,lly,urx,ury) — Draw a rectangle affected by object Environmentals.

RECTRL(dx,dy) — Draw a rectangle relative to the CP; the lower left coordinate is determined by the CP.

Text Output

Each text string is output at the current position. Text output appearance is affected by values of Environmental primitive attributes, such as text color index, size and orientation.

TEXT(n,string) — Output a string of text.

INQEXT(dx,dy,n,string) — Inquire upon the extent of the text, relative to the CP.

Utilities

Utilities allow efficient access to installation and hardware specific features.

ZOOM(factor) — Zoom with a specified scale factor.

INQZOM(factor) — Retrieve the current zoom scale factor.

PANABS(x,y) — Pan absolute to the upper left coordinate (x,y).

PANREL(dx,dy) — Pan with respect to the current pan location.

INQPAN(x,y) Retrieve the current pan location.

BLKORN(sright,stop,dright,dtop,fold) — Set orientation for block and object moves for the source and destination of objects (PIXBLT attributes).

INQBRN(sright,stop,dright,dtop,fold) — Retrieve the current orientation for block and object moves.

BLKMOV(sourcex,sourcey,destx,desty,width,height)— Move the source block of objects in normalized device coordinates to the destination (PIXBLT).

OBJMOV(sourcex,sourcey,destx,desty,width,height)— Move the source object in world coordinates to the destination.

RDDATA(x,y,value) — Read from buffer at (x,y); Direct Data Retrieval.

WTDATA(x,y,value) — Write to buffer at (x,y); Direct Data Transfer.

CURSOR(color-index) — Enable the cursor to appear at the CP.

SEED(x,y,boundary-color) — Seed fill, starting at (x,y).

DEVINT(code,array,error) — Access Ω400 functions, using normalized device coordinates; all graphics actions supported by Ω400 may be accessed through this interface or directly; the code and array correspond to the desired function and necessary input; an error may be returned.

Ordering Information

The AXIA Graphics Package is available on the VAX-11, PDP-11 and LSI-11 computers. It supports the DR11 and DRV11 programmed I/O and DMA interfaces. The operating systems supported include RT-11, RSX-11, VMS and UNIX. AXIA is available on magnetic tape, as well as 8-inch diskette. Other media will be available upon special request.

Contact your local Sales Representative or METHEUS Corporation for specific model numbers and prices.

METHEUS CORPORATION (503) 640-8000
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*VAX, PDP, DR11, DRV11, RT-11, RSX and VMS are trademarks of Digital Equipment Corporation.

**UNIX is a trademark of Bell Telephone Laboratories.

The information contained herein is summary in nature, subject to change and intended for general information only. Details and specifications concerning the use and operation of METHEUS Corporation products are available in the applicable technical manuals.

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METHEUS

Printed in U.S.A./212/0382/5K/BA/UC

METHEUS

The name METHEUS is taken from the Greek Titans Prometheus and Epimetheus who were charged with providing tools for earth's inhabitants. Prometheus is traditionally associated with creativity and bold originality. The literal translation of METHEUS is "Thinker."

The corporate objective of METHEUS is to put the power of custom VLSI circuitry into the hands of the electronic product designer. By doing so, METHEUS will participate in the next revolution in electronics, one comparable in scope to those precipitated by the inventions of the transistor, the integrated circuit and microprocessor. METHEUS will provide low-cost tools and services which, taken together, will enable the product designer to work quickly from concept to realization for integrated silicon systems. This will consist of high performance color graphic subsystems, VLSI design workstations and an in-house IC design service.

The color graphic subsystem, the dominant human interface in a computer system, exploits the latest LSI/VLSI bipolar and MOS technologies. Avanced design techniques are employed to provide significant advances in price/performance capabilities, and special attention has been paid to reliability and serviceability through the reduction of mechanical interconnections and the use of special built-in self-tests and signature analyzers. In addition to being used in the work station, the graphics subsystem will also be sold to OEMs and to universities and research institutions.

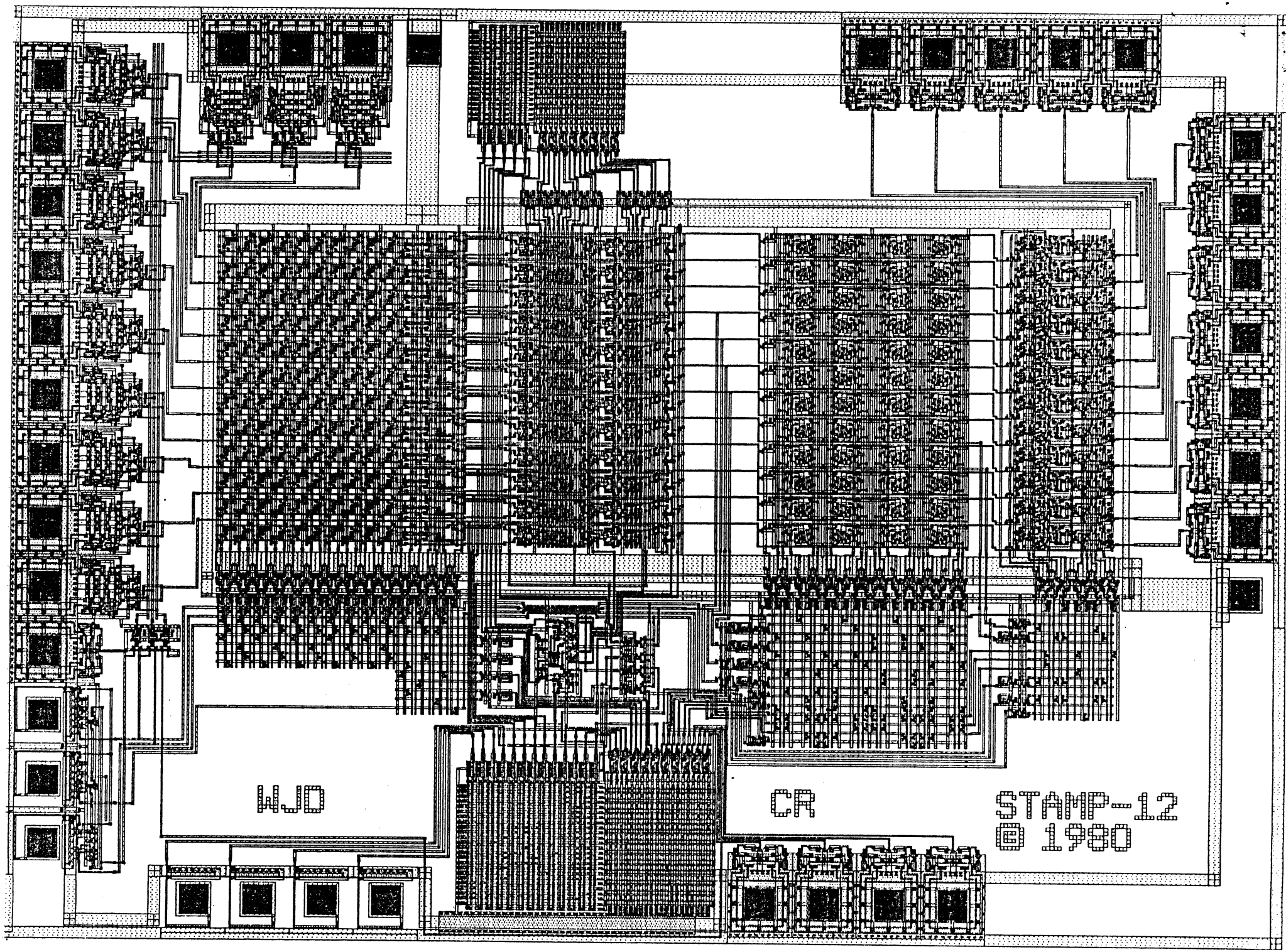
The METHEUS VLSI design workstation combines state-of-the-art hardware with leading edge CAD software. The hardware is distinguished by the intelligent high resolution color graphics subsystem, a low-cost test fixture for prototype testing and a systems architecture to meet the demands of VLSI design. The development of CAD software is the greatest challenge for the workstation's development. The software system will be capable of taking the product designer through all levels of abstraction from product concept to block diagram, systems specification, graphics editing, layout, design rule checking, simulation and test vector generation. Although many of the elements of this software system have been developed by universities and industry, their integration into a complete design tool will be an original achievement, one which will distinguish METHEUS as an industry leader.

The METHEUS in-house design service will make the integrated systems approach available to customers who do not purchase workstations. Moreover, experience gained by in-house designers will be fed back into improving the workstation's hardware and software.

In cooperation with silicon foundries, METHEUS will help complete the product design cycle with fast turnaround prototyping and production of LSI/VLSI chips. The workstation software will incorporate the process parameters of these foundries; foundry processes can be selected to assure fast turnaround, high yields and second sourcing.

The METHEUS staff is experienced and accomplished in the engineering, financial, manufacturing and marketing disciplines required to make the integrated systems approach a commercial reality. Through education and industry experience, they bring to METHEUS the singular talents and resources needed to provide low cost, custom IC capability to product designers.

P.O. Box 1049, Hillsboro, OR 97123 ● (503) 640-8000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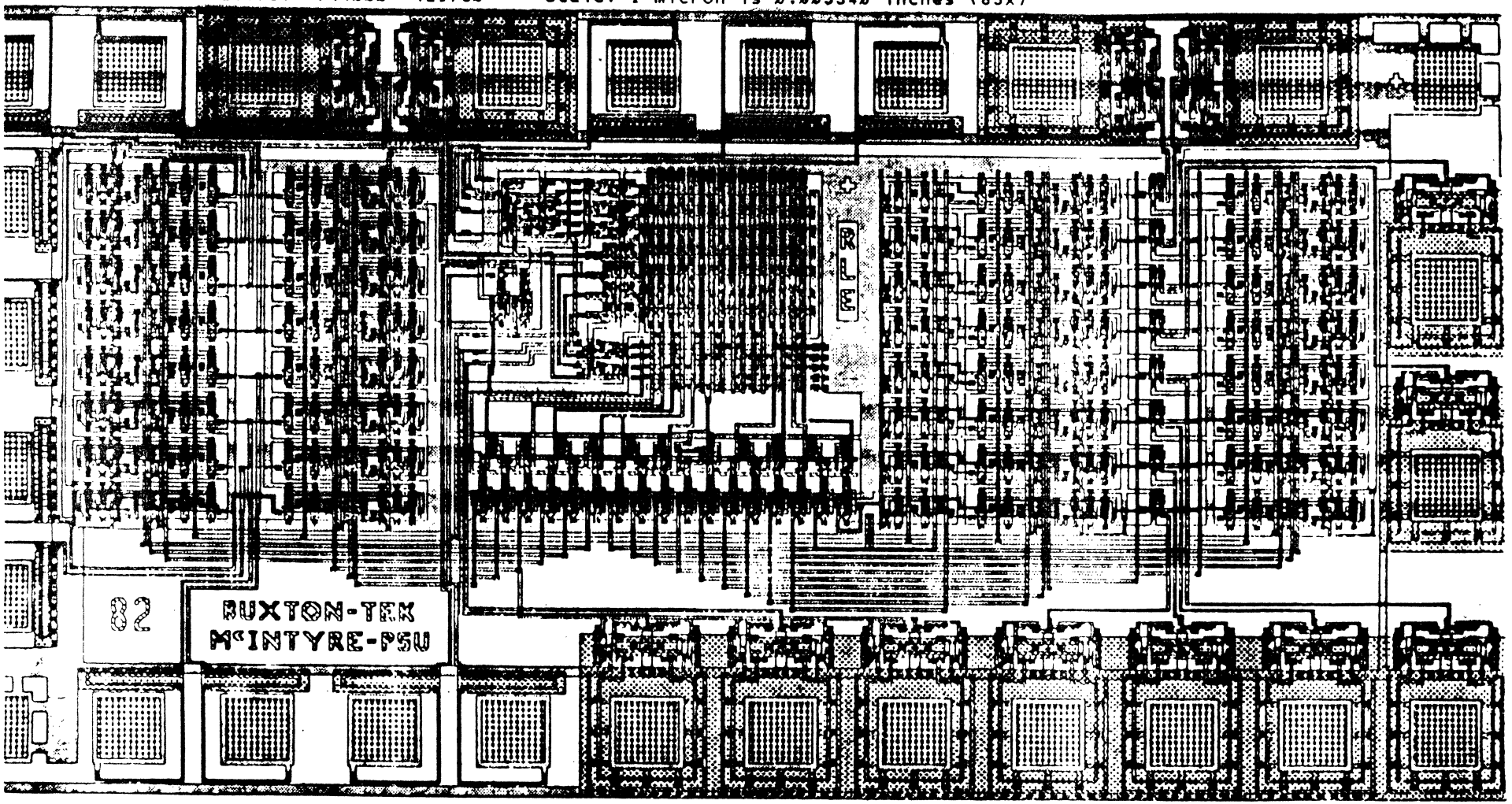
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